

32. Building on their success in the access market, entrants such as CAPs are moving toward becoming full-service telecommunications companies. Most CAPs are expanding their networks and adding switching capability to support local services for both business and residential customers. Expanding into local exchange services and bundling local, access, and toll services will give CAPs and IXC's greater opportunities for revenue and profit growth.

33. In addition, technological changes are causing fundamental shifts in industry economics, stimulating entry and increasing actual and potential competition within and across modes of communications. Among the most critical of these developments are rapid advances in microelectronics and digital switching and signaling systems; the use of fiber optics in the provision of outside plant in high density areas; the conversion of cable TV networks to offer telephony services; and dramatic improvements in wireless communications systems, with quantum increases in capacity, substantial improvements in quality, and falling prices that will enable wireless carriers to compete with wireline carriers. Such technological advances facilitate entry by reducing initial capital costs and allowing entrants to offer an array of new services to meet changing and growing customer demands. They also shift scale and scope economies within and across modes of communication, enabling cable telephony, wireless local loops and other forms of "intermodal" competition. Finally, these advances render existing network facilities of incumbent carriers obsolete, reducing these carriers' advantages. The net effect will certainly be to increase competition to the LECs.

34. In an environment where LECs did not face competition, cost information and notification requirements may have been viewed as necessary to allow the FCC to ensure that rate changes were justified by costs. But where CAPs and other competitors exert competitive pressure on a LEC, review by the FCC in advance of a tariff change is unlikely to accomplish anything that market forces cannot do better. Unjustified rate increases will simply cause consumers to buy from a competing provider that undercuts the LEC's price.

B. Price Cap Regulation Has Eliminated Incentives to Cross-Subsidize Competitive Access and Exchange Services with Less Competitive Services

35. Whatever the state of competition for a particular service in a particular market, there will still be little risk in eliminating current dominant carrier filing rules where the carrier is subject to price cap regulation. In 1990 the FCC moved from rate-of-return regulation to a price cap system for regulating the access services of the largest LECs. Price-cap rules result in a band of prices for a particular “basket” of services, within which prices are presumed reasonable. Carriers have an incentive to cut costs because they keep much or all of the additional profits that result; they are discouraged from gold plating regulated operations or shifting costs because earnings fall when costs rise.

36. Under price caps, services that are close economic substitutes for each other are contained in the same price-cap basket. Thus, high-capacity access services which are subject to the most competition are contained in the trunking basket while less competitive services are held in separate baskets. In the Commission's words, this “prevent[s] the LECs from offsetting rate reductions for transport services subject to competition with rate increases for switching and other traffic sensitive services, which [were] subject to much less competition.”³¹

37. Price-cap regulation, by its fundamental design, prevents predation and cross-subsidization. LECs cannot inflate the price of services in one basket in order to price services in other baskets below short-run marginal or incremental cost. Reducing the prices of services in one basket has no effect on the existing price cap for services in a different basket.

³¹9 F.C.C. Rcd 615, 622 (1994).

38. Price-cap regulation severs the relationship between fully distributed costs and regulated rates.³² Additions to the rate base do not translate into increases in the price cap. The only way that such increases could occur is through low-end earnings adjustments (for which the appropriate policy response would be to eliminate sharing and low-end earnings adjustments, not to perpetuate dominant-carrier filing requirements). Even a price-cap regime with vestiges of rate-of-return regulation does not provide any realistic opportunity for predation or cross-subsidy. A predatory or cross-subsidization strategy premised on such uncertain future adjustments would be dubious at best from a financial, or indeed any other business, perspective.

39. More generally, and wholly aside from price-cap regulations, a predatory pricing strategy is unlikely to be successful in eliminating competition for access and local exchange services. Predation would require that a LEC sustain large losses to destroy potential competitors. Such a strategy can succeed only if the targets of the predatory acts have shallow financial pockets and if there are barriers to future competition that permit the LEC to recoup the large costs of its predatory practices. LEC competitors include many financially strong companies such as AT&T and MCI. They have pockets deep enough to outlast a LEC's predatory attempts. Furthermore, even if a LEC succeeded in eliminating a new entrant, the entrant's network would still be in place and could be purchased at a substantial discount by another competitive entrant who could provide service at relatively low cost.

40. Price caps thus make cost-support and notification rules superfluous to protect against predatory pricing and cost shifting. Price-cap regulation, moreover, sets a ceiling on carrier price increases, providing protection against monopoly pricing as well. Thus, as long as carriers do not go above the price cap ceiling (a fact that is readily ascertained) there is no need to delay or require advance justification for increases or decreases in tariffed rates.

³²The FCC adopted this policy to increase carriers' incentives to reduce costs and implement innovative and efficient technologies, and to reduce the incentive and ability to engage in predatory conduct.

41. The recent history of SWBT's tariff filings provides an indication of the extent to which market forces and price caps have removed the concerns that underlie current dominant carrier filing requirements. According to SWBT, 12 out of 78 tariffs filed in the last year were substantially delayed due to third-party intervention or investigation by the Commission. Only two of the 78, however, were rejected by the FCC.³³

42. It is important to note that reducing the notice period and removing unnecessary cost-support requirements would not eliminate regulatory oversight. It would only remove regulation's most anticompetitive features. Consumers and competitors would continue to be protected by the complaint process which can be initiated by CAPs, IXC's, or other competitors. The Commission itself could still investigate LEC rates. The antitrust laws provide a final line of defense against anticompetitive practices. CAPs and other competitors thus cannot complain that they are at risk of anything more harmful than competition.

IV. LESSONS FROM REGULATORY HISTORY: SURFACE FREIGHT AND FINANCIAL SERVICES

43. Like LECs, railroads and banks were historically the dominant firms in their respective markets -- surface freight transportation and depository financial services. Both of these markets became increasingly competitive as entry, technological innovation, shifting consumer demands, and intermodal competition brought many new firms into the market. In both cases, regulators failed to respond to growing competition and continued to regulate asymmetrically the incumbent banks and railroads, causing huge inefficiencies, declining financial performance and, ultimately, the expenditure of public funds to bail out failed firms. The parallels between the regulation of railroads, banks, and LECs demonstrate that regulators should be careful not to handicap current providers in favor of new entrants.

³³The two rejected tariffs involved a response to requests for proposals issued by MCI and an extension of the service periods for Vintage MegaLink Custom service. One tariff is still pending before the Commission and another was withdrawn. The remaining eight were allowed to take effect.

44. In the surface freight industry, the Interstate Commerce Commission (ICC) controlled the rates for almost all railroad services including freight haulage, cargo transfer, and freight-car leasing. Railroads were not allowed pricing flexibility to respond to changes in market conditions, but lightly regulated competitors in the trucking industry had wide latitude to adjust their pricing to changes in the market. Additionally, railroads needed to go through a lengthy approval process before initiating new services such as specialized car types (e.g., “piggyback” service) or changing the frequency of service. Unregulated competitors -- private and contract motor carriers -- exploited these limitations to take traffic from rail, even though rail was the more efficient mode of transport. As a result of these and other misguided regulatory policies, railroads lost a huge amount of their market share and many of the nation’s railroads were forced into severe financial distress in the 1960s and 1970s. Customers who continued to rely on railroads for transportation suffered greatly from deteriorating service quality and abandoned lines. Finally, after a great deal of economic dislocation and lost efficiencies, the regulatory reforms of 1980 eventually restored the competitive balance between rail and motor carriers. Not surprisingly, today both railroads and motor carriers are more efficient, charge lower prices, and offer new and better-quality services.

45. For many years, banks were not allowed to introduce innovative new services such as interest-bearing checking accounts or proprietary mutual funds, due to regulations on “nonbanking” financial activities. Banks were also severely limited in their pricing flexibility by Regulation Q, which restricted the interest rates they could pay on deposits. Yet banks faced growing “intermodal” competition from diversified financial services firms and “nonbanks” who could offer a wide array of new services and alternative pricing plans, and had few or none of the regulatory obligations imposed on banks. Bank competitors such as Merrill Lynch were able to introduce new services at will and gained substantial market share at banks’ expense. Largely as a result of these asymmetric regulations, banks suffered from massive losses of deposit and loan customers, which put pressure on bank earnings and reduced the stability of the financial system. Moreover, those customers who did not have

access to the new diversified services -- most notably low-income customers -- were denied the choice of new services or higher interest rates on deposits.

46. The lesson of both these cases is directly relevant to the Commission's regulation of LECs. By failing to recognize the development of competition and the extraordinary rate of technological change, regulators in surface freight transportation and depository financial services prevented railroads and banks from competing fairly with new entrants. By failing to change with the times, asymmetric regulation biased and distorted competition and denied many customers the benefits of competition. Given the crucial role of local exchange carriers in building, maintaining, and operating the information infrastructure, the nation can ill afford to repeat those regulatory failures in the telecommunications industry.

CONCLUSION

47. Removing the current dominant carrier filing requirements will promote economic efficiency, technological innovation, and consumer welfare. This step can be taken without any substantial danger of cross-subsidy, predation, or monopoly pricing, because market forces and price-cap regulation already address those concerns. What limited risk would remain is remediable through continued regulatory oversight under symmetrical rules that do not needlessly harm LECs and the public.

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PRESENT POSITION

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ACADEMIC HONORS AND AWARDS

Industry Expert Panel, Center for Telecommunications Management, University of Southern California

Charles C. Slater Award (outstanding contribution to the *Journal of Macromarketing*, 1983-86).

Schwabacher Prize (outstanding University service), 1983.

Phi Beta Kappa, 1977.

Alfred P. Sloan Dissertation Fellowship, 1975-77.

Blue Key and Excalibur Honorary Fraternities, 1964-65.

President, All-University Student Government, 1964-65.

TEACHING

Graduate Courses: Business and Public Policy (MBA Core Course), Competitive Strategies & Public Policies in Telecommunications, Microeconomic Analysis for Managerial Decisions, Industry Analysis and Competitive Strategy, Doctoral Research in Business & Public Policy, Antitrust Law (School of Law, with L. Sullivan), Antitrust Economics (Department of Economics).

Undergraduate Courses: Social and Political Environment of Business (Core Course), Economics of Regulated Industries, The Corporation and the Global Economy.

Executive Education: Competitive Strategy, Telecommunications Policy and Strategy, Public Policy Strategy, Managing Business-Government Relations.

PUBLICATIONS

"Competition and Public Policies in Telecommunications: A Survey of U.S. Developments," presented to Conference on Privatization and Deregulation in the US, UK and Japan, Economic Research Institute of the Economic Planning Agency of Japan, Tokyo, 1995; forthcoming in *Conference Proceedings*.

"Competition and Unbundling in Local Telecommunications: Implications for Antitrust Policy," with Gregory L. Rosston and David J. Teece, presented to Telecommunications Policy Research Conference, Solomons, Maryland, October 1994; forthcoming in *Conference Proceedings*, EAL Press.

"State Regulatory Policies and the Telecommunications/Information Infrastructure," presented to Workshop of the National Research Council, Washington D.C., October 1993; *The Changing Nature of Telecommunications/Information Infrastructure*, National Academy Press, 1995.

"Access and Competition Policy in the Deregulated Rail Freight Industry, with Comparisons to Competitive Access Issues in Telecommunications," with Curtis M. Grimm, presented to Columbia Institute for Telecommunications and Informatics, New York, November 1993; forthcoming in *Conference Proceedings*, Oxford University Press.

"R&D Expenditures by the Bell Operating Companies: A Comparative Assessment," invited paper, Twenty-Third Annual Conference, Michigan State University Institute of Public Utilities, Williamsburg, Virginia, December 9, 1991; *MSU Public Utility Conference Proceedings*, 1993.

"Strategic Uses of Regulation: The Case of Line-of-Business Restrictions in Communications," with Robert A. Blau, presented to Academy of Management, Miami, FL, August 14, 1991; *Research in Corporate Social Performance and Policy*, James E. Post (ed.), JAI Press, 1992.

"Structural Adjustment Through Industry Deregulation: The U.S. Experience in Telecommunications and Transportation," invited paper, Pacific Economic Cooperation Conference on Structural Adjustment, Kyoto, Japan, October 11, 1990; published in *PECC Conference Proceedings*, 1991.

"Gaining Competitive Advantage through Strategic Public Policies: The Case of Japanese Telecommunications," invited lecture, National Economists Club, Washington, D.C., June 1988; published in *Economics and the Public Interest*, Richard T. Gill (ed.); Mayfield Publishing: Mountain View, CA, 1991.

"The Political Economy of Regulation: Analysis of Market Failures and Regulatory Responses," with James A. Carman, *Scaling the Corporate Wall: Readings in Social Issues of the Nineties*, S. Prakash Sethi, Paul Steidlmeier and Cecilia M. Falbe (eds.); Prentice-Hall: Englewood Cliffs, 1991.

"Telecommunications Services as a Strategic Industry: Implications for United States Policy," *Competition and the Regulation of Utilities*, Michael A. Crew (ed.), Kluwer Academic Publishers: Boston, 1990.

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"New Plans for Joint Ventures," with David C. Mowery, *The American Enterprise*, Sept/Oct 1990.

"Strategies for Innovation: An Overview," with David C. Mowery, *California Management Review* 32(3), Spring 1990, Co-Editor of Special Issue, "Strategies for Innovation."

"The Implications of Divestiture and Regulatory Policies for Research, Development and Innovation in the U.S. Telecommunications Industry," presented to Telecommunications Policy Research Conference, September 1988; *Telecommunications Policy*, April 1990.

"Telecommunications Policies in Japan: Lessons for the U.S.," presented to Advanced Workshop in Regulation and Public Utility Economics, Monterey, CA, July 1988; presented to Telecommunications Policy Research Conference, October 1988; *California Management Review* 31(3), Spring 1989.

"California Telecommunications Policy for the Twenty-First Century," *Report to the California Economic Development Corporation*, Sacramento, June 1988.

"A Qualitative Choice Analysis of Rail Routings: Implications for Vertical Foreclosure and Competition Policy," with Curtis A. Grimm, *The Logistics & Transportation Review*, March 1988.

"Horizontal Merger Policy: Promoting Competition and American Competitiveness," with Lawrence A. Sullivan, *Antitrust Bulletin*, January 1987.

"The Political Economy of Regulation," with James M. Carman, *Business & Society*, S.P. Sethi and C. Falbe (ed.), Lexington Books: Lexington, 1987.

"Public Regulation of Market Activity: Regulatory Failures," with James M. Carman, *Journal of Macromarketing*, Spring 1986.

"The Effects of Railroad Mergers on Industry Productivity and Performance," with Curtis M. Grimm, invited paper to Transportation Research Board, National Academy of Engineering, January 1986; *Transportation Research Record* 1029, 1986.

"Revitalization of the U.S. Freight Industry: An Organizational Perspective," with Curtis M. Grimm, *International Railway Economics*, K. Button & D. Pitfield (eds.); Croom: London, 1985.

"The Values of Economic Theory in Management Education," *The American Economic Association Papers & Proceedings* 74(2), May 1984.

"Public Regulation of Market Activity: Regulatory Responses," with James M. Carman, *Journal of Macromarketing*, Spring 1984.

"Antitrust Market Definition: An Integrated Approach," with Thomas M. Jorde, *California Law Review* 72(1), January 1984. Reprinted in *Corporate Counsel's Annual*, Matthew Bender, 1985. Reprinted in *Antitrust Anthology*, edited by A. I. Gavil, Anderson Publishing, 1995.

"Structural Economics of the U.S. Rail Freight Industry: Concepts, Evidence and Merger Policy Implications," with Curtis M. Grimm, *Transportation Research* 17A(4), July 1983.

"Vertical Foreclosure in the Rail Freight Industry: Economic Analysis and Public Policy Prescriptions," with Curtis M. Grimm, *ICC Practitioners' Journal*, July 1983.

"Market Definition in the Merger Guidelines: Implications for Antitrust Enforcement," with Thomas M. Jorde, *California Law Review* 71(3), March 1983. Reprinted in *Antitrust Policy in Transition: The Convergence in Law and Economics*, Fox and Halverson (eds.), American Bar Association, 1984.

"Public Regulation of Market Activity: Institutional Typologies of Market Failures," with James M. Carman, *Journal of Macromarketing*, Spring 1983.

"Potential Benefits of Rail Mergers: An Econometric Analysis of Network Effects on Service Quality," with Clifford Winston, *Review of Economics and Statistics* 65(1), February 1983.

"Regulation: A Long Term Perspective," *Business Environment/Public Policy: The Field and Its Future*, Edwin M. Epstein and Lee E. Preston (eds.), St. Louis, 1982.

"The Financial Performance and Prospects of Railroads in the South and Southwest," with Curtis M. Grimm, *Texas Business Review*, November/December 1982.

"More on Passing On: A Reply to Cooter and to Viton and Winston," with Lawrence A. Sullivan, *Pennsylvania Law Review* 129:6, June 1981.

Rationalizing the Rail Freight System: Costs and Benefits of Branch Line Abandonments, U.S. Department of Transportation, Washington, D.C., 1981.

"Determinants of Railroad Profitability: An Econometric Study," with Theodore E. Keeler, *Economic Regulation: Essays in Honor of James R. Nelson*, William G. Shepherd and Kenneth D. Boyer (eds.), Michigan State University Press, 1981.

"Passing on the Monopoly Overcharge: A Response to Landes and Posner," with Lawrence A. Sullivan, *Pennsylvania Law Review* 128(5), May 1980.

"Suppliers of Last Resort: Economics of Self-Supply in Common Carrier Industries," with Robert A. Meyer, *Quarterly Review of Economics and Business* 19(4), Winter 1980.

"Economic Analysis of Light Density Rail Lines," *The Logistics and Transportation Review* 16(1), Winter 1980.

"Passing on the Monopoly Overcharge: A Comprehensive Policy Analysis," with Lawrence A. Sullivan, *Pennsylvania Law Review* 128(2), December 1979.

"Rationalizing the Physical Structure of the U.S. Rail Freight Industry," *National Railroad Policy*, Joint Economic Committee, U.S. Congress, Washington, D.C., Government Printing Office, 1979.

"Simple Analytics of Rail Costs and Disinvestment Criteria," *Transportation Research Record* 687, 1978.

"Economics of Traffic Density in the Rail Freight Industry," *Bell Journal of Economics* 8(2), Autumn 1977.

PAPERS, REPORTS, PRESENTATIONS & PROFESSIONAL PROCEEDINGS

"Telecommunications Trade and Investment Opportunities in China and India," presented to the Massachusetts Telecommunications Council, Boston, February 1995.

"The Strategic Implications of Interactive Broadband Telecommunications Networks for Competition and Public Policy," presented to the National Communications Forum, Chicago, September 1994.

"Competitive Implications of Vertical Relations between Equipment Vendors and Telecommunications Services: Lessons from the French Experience," with Joanne Oxley, presented to European Regional Conference of the International Telecommunications Society, Stenungsbaden, Sweden, June 21, 1993.

"Obtaining Competitive Intelligence and Creating Competitive Advantage through the Public Policy Process," with Steven Harris, invited paper, Annual Conference of the Society for Competitive Intelligence Professionals, Los Angeles, April 2, 1993.

"Deployment and Adoption of Integrated Services Digital Network in the U.S.: Progress and Public Policy Obstacles," with Luis Enriquez, invited paper, Twenty-Fourth Annual Conference, Michigan State University Institute of Public Utilities, Williamsburg, Virginia, December 8, 1992.

"Market Definition and Market Power in the Sports and Entertainment Industry," invited presentation, Antitrust Section, American Bar Association Annual Proceedings, San Francisco, August 1992.

"The Design of Incentive Regulation for Telecommunications," invited presentation, Conference on Alternative Regulation, Illinois Commerce Commission, Chicago, July 1992.

"The Effects of Public Policies on ISDN Deployment and Adoption in the U.S.," presented to International Telecommunications Society, Cannes, France, June 1992.

"Removing the MFJ Restriction on InterLATA Services," invited testimony, Subcommittee on Telecommunications & Finance, U.S. House of Representatives, Washington D.C., May 1992.

"The Implications of Telecommunications Infrastructure Investment for R&D, Innovation and Competitiveness," invited testimony, Subcommittee on Communications, U.S. Senate, Washington D.C., February 1992.

"Principles of Costing and Pricing for Telecommunications Regulatory Policy," invited testimony, Colorado Public Utilities Commission En Banc Hearing, Denver, February 1992.

"Deregulation and Interstate Bank Entry in California," with Lee Burke, Research Report of the California Policy Seminar, UC Berkeley, April 1991.

"Assessing the Future of Telecommunications in the Global Economy," invited address, California Telephone Association, Monterey, CA, February 1991.

"Economic Rationale for a National Fiber Optic Infrastructure," invited address, Congressional Staff Forum on Telecommunications (sponsored by Ameritech), Washington D.C., February 1991.

"Applications of Incentive Regulation: An International Comparison," invited presentation, Conference of California Public Utilities Counsel, Long Beach, CA, October 1990.

"The Role of Telecommunications in Regional Economic Development," invited address, Rocky Mountain State Leaders Conference, Billings, Montana, October 1990.

"Telecommunications and Public Policies in the Global Market," invited address, Carnegie Council, New York, NY, October 1990.

"Why We Need a National Telecommunications Policy: A Comparative Perspective," invited address, Policy Issues Management Conference, Bell Communications Research, Murray Hill, NJ, October 1990.

"Incentive Regulation for Telephone Utilities," invited presentation, Workshop of the Colorado Public Utilities Commission, Denver, September 1990.

"The Role of Telecommunications Policy," invited lecture, Conference on Economic Development in the Pacific Northwest, Portland, Oregon, September 1990.

"The Changing Economics of Telecommunications: Implications for U.S. Policy and Competitiveness," invited briefing of U.S. Congressional staff on telecommunications (sponsored by Pacific Telesis), San Francisco, August 1990.

"Communications Competitiveness and Infrastructure Modernization Act of 1990," invited testimony, Communications Subcommittee, U. S. Senate, Washington D.C., July 1990.

"Investing in America's Future," invited essay, 1989 Annual Report of Southwestern Bell Corporation, St. Louis, 1990.

"The Public Switched Telephone Network and Rural Economic Development," invited lecture, Montana State Leaders' Conference, Helena, April 1990.

"Is Public Policy Meeting the Needs of Consumers?" invited panelist, Conference on Telecommunications Technologies and Policies, Center for Communications and Information Science & Policy, University of Pennsylvania, March 1990.

"Telecommunications as a Strategic Industry," invited address, New England Council, Boston, February 1990.

"Fiber to the Customer: A Public Policy Perspective," invited paper, Western Communications Forum, San Diego, February 1990.

Session Chair and Moderator, "State Regulatory Reform: Recent and Future Trends," Fifth Conference on State Telecommunications Regulation, University of Utah, Salt Lake City, January 1990.

Invited Panelist, "Crossroads of Information Technology," Board on Telecommunications and Computer Applications, National Academy of Engineering, Washington D.C., October 1989

Invited panelist in the "Industry Forum," Annual Meeting of the U.S. Telephone Association, San Francisco, October 1989.

"Strategic Lessons from Deregulated Industries," paper presented to Strategic Management Society, San Francisco, October 1989.

"Deregulation in the Transportation Industries: Lessons for Telecommunications Managers," invited paper, Center for Telecommunications Management, University of Southern California, October 1989.

"Price Cap Regulation and Economic Forecasting," invited presentation to 1989 National Forecasting Conference, Bell Communications Research, San Francisco, May 1989.

"The Strategic Implications of Telecommunications Deregulation in Europe," invited presentation, Strategic Management Society, Amsterdam, October 1988.

"Telecommunications Deregulation: Implications for the California Economy," invited presentation, California Foundation for the Environment and the Economy, Carmel, June 1988.

"A Comparison of U.S. and Japanese Policies toward Information Technologies," invited presentation, International Public Economics Association, Tokyo, May 1988.

"Information Technologies, Public Policy, and Regional Economic Development," invited address, Conference on Regional Development in Japan, Hokkaido University, Sapporo, Japan, May 1988.

"The Implications of Line-of-Business Regulation for Diversification Strategy & Enterprise Structure," presented to Strategic Management Society, Boston, October 1987.

"Alternative Regulatory Frameworks for Local Exchange Carriers," invited presentation, En Banc Hearing of the California Public Utility Commission, September 1987.

"Emerging Telecommunications Policies in Europe," Briefing of California Legislative Leaders, Los Angeles, September 1987.

"Japanese Corporate Philanthropy in the United States," presented to Academy of Management, New Orleans, August 1987; Center for Research in Management Working Paper BPP-23; published in summary form in *Strategic Directions*, with Barbara Lombardo and David Vogel, April 1989.

"The Effects of Deregulation on Competition and Competition Policy in Banking: A Review of the Literature," Working Paper No. 4, National Center for Financial Services, Berkeley, August 1987.

"Competitive Strategies under Regulatory Constraint: Implications of the AT&T Divestiture on Vertical Relations in Telecommunications," with David J. Teece, paper presented to Strategic Management Society, Singapore, 1986.

"The Economic Consequences of Deregulation," invited address, Emerging Issues Program, Conference of National State Legislative Leaders, Los Angeles, September 1986.

"Public Policies toward Utility Diversification: An Overview," invited presentation, California Policy Seminar/California Senate Office of Research, Berkeley, April 1986.

"New Technologies for Local Loop Access: An Economic and Regulatory Analysis." with Gary Pisano, Office of Technology Assessment, United States Congress, June 1985.

"Corporate Community Involvement in the Greater San Francisco Bay Area." with D. Vogel and J. Logsdon, Center for Research in Management Working Paper, Berkeley, May 1985.

"The Future of Telecommunications Regulation," invited presentation, En Banc Hearing of the California Public Utilities Commission, San Francisco, November 1984.

"Testimony in Support The Taxpayer Antitrust Enforcement Act," Judiciary Committee, U.S. Senate, May 1984.

ADMINISTRATIVE POSITIONS, UNIVERSITY OF CALIFORNIA**WALTER A. HAAS SCHOOL OF BUSINESS**

Chair, Business and Public Policy Group (1983-84, 1986-93).
Policy and Planning Committee (1986-88; 1991-93); Chair (1987-88; 1992-93).
Chair, Program in Business and Social Policy (1986-90).
Business School Building Program Committee (1986-91).
Ph.D. Field Advisor, Business and Public Policy (1981-87; 1989-91).
Policy and Planning Committee (1991-3; Chair, 1992-93).
Member, Board of Directors, Washington Campus Program (1990-93).
Director, The Executive Program (1983-85).
Director, Executive Programs in Telecommunications (1989-92).
Chair, Executive Education Task Force (1991-93).
Member, Board of Directors, Berkeley Center for Executive Development

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Executive Committee, Center for Research in Management (1989-).
Advisory Board, Lester Center for Innovation and Entrepreneurship (1992-).
Chancellor's Advisory Committee on Parking (1988-89).
Executive Committee, National Financial Services Center (1986-88).
Executive Committee, Institute of Transportation Studies (1981-83).
Director, Center for Transportation Policy Research (1980-2).

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Working Group on Technology Transfer (1988-90).
Task Force on Telecommunications and Information Policy Research (1984-85).

PROFESSIONAL AFFILIATIONS

American Economic Association
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SERVICE TO PROFESSIONAL JOURNALS, SOCIETIES & PUBLIC AGENCIES

Governor's Ad Hoc Committee, Golden State Quality Awards (1991-92)
Chair, Ninth Annual International Conference of the Strategic Management Society, 1989, San Francisco
Associate Editor, California Management Review
Associate Editor, Logistics and Transportation Review
Editorial Advisory Board, Transportation Research
Session organizer, Telecommunications Policy Research Conference (1988, 1989)
Session organizer, Academy of Management (1991).
Reviewer/Referee: Bell/RAND Journal of Economics; Industrial and Corporate Change; Journal of Asian Economics; Journal of Economics and Business; Journal of Public Policy Analysis & Management; Journal of Regulatory Economics; National Science Foundation; Quarterly Review of Economics and Business; Review of Economics and Statistics; Telecommunications Policy.

CONSULTING & TESTIMONY

Economic Consulting to Public Agencies:

California Department of Consumer Affairs (industry analysis; telecommunications policy); California Office of Attorney General (antitrust analysis in tire industry, merger analysis in food retailing industry, resale price maintenance in consumer electronics, infant formula pricing); California Public Utilities Commission (teach regulatory economics & policy to Commission staff); Interstate Commerce Commission (rate regulatory policy, merger policy, costing methodology); Office of Technology Assessment (telecommunications policy); U.S. Department of Transportation (railroad industry rationalization, merger policy); U.S. General Accounting Office (transportation policy).

Economic Consulting/Regulatory Expert Testimony to Private Enterprise:

Pacific Bell (product pricing, competitive strategy, regulatory policy, broadband deployment, MFJ interLATA relief); US WEST (regulatory policy, costing and pricing principles); Ameritech (price regulation; local competition policy); General Telephone (pricing, regulatory policy); Western Coal Traffic League (railroad pricing); Consolidated Freightways (motor carrier pricing); Southern Pacific Transportation Co. (route rationalization analysis; rail merger analysis; pricing of trackage rights); American Presidents Intermodal Co. (competition policy, merger analysis); Bell Communications Research (R&D policy analysis); Bell Atlantic (price regulation, cable rate regulation; cellular telephone joint venture); Southwestern Bell (price regulation, local competition policy); BellSouth (price regulation, local competition policy); NYNEX (FCC spectrum auction rules); United States Telephone Association (FCC price regulation); MFJ Task Force (MFJ manufacturing relief).

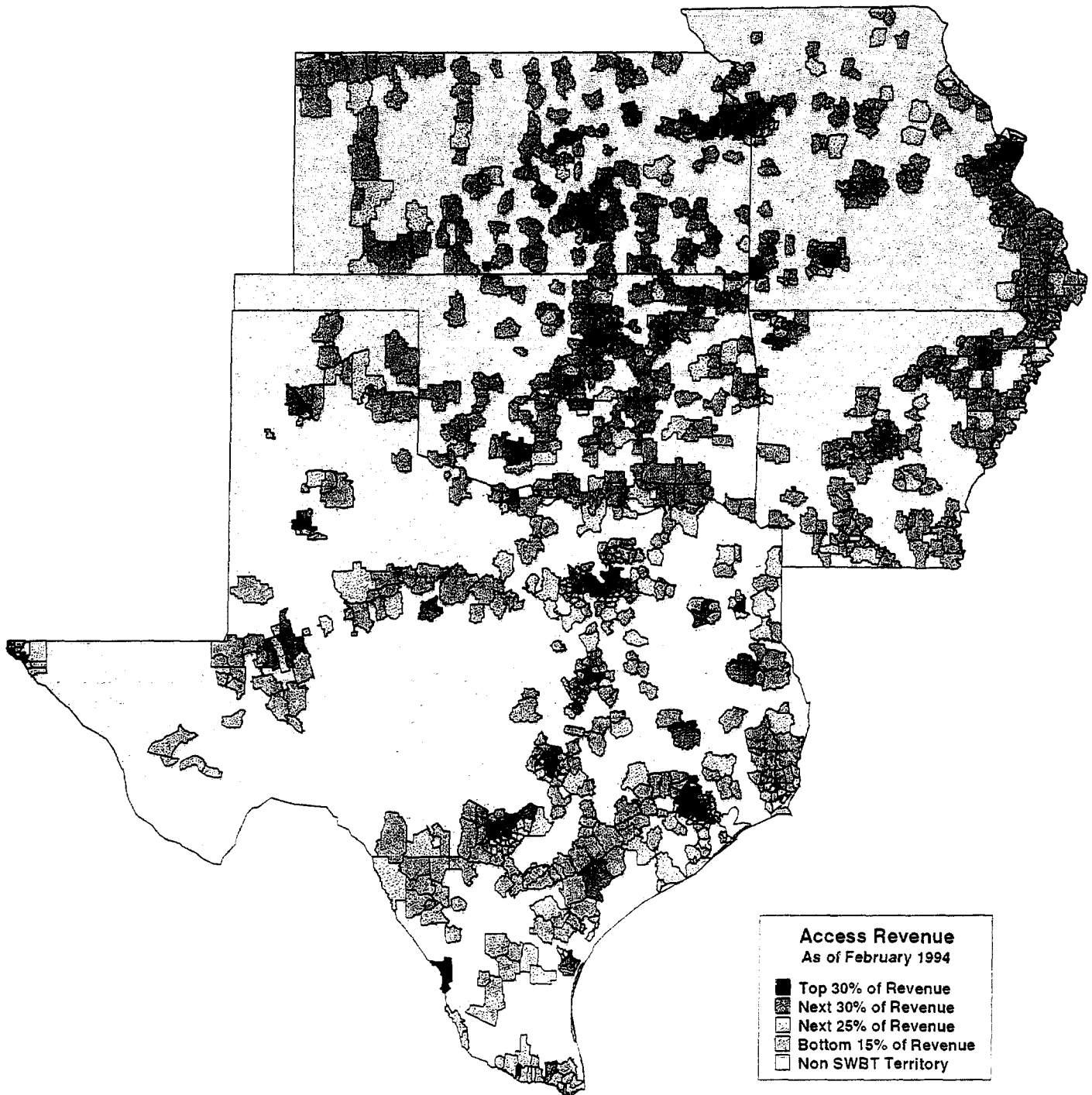
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Electrical contracting; biotechnology manufacturing equipment; pipe fabrication; vision care services; electronic lighting ballasts; motion picture production, distribution and exhibition; regional shopping center development, semiconductor manufacturing equipment; digital-analog converters; workmen's compensation insurance; semiconductor manufacturing; semiconductor manufacturing.

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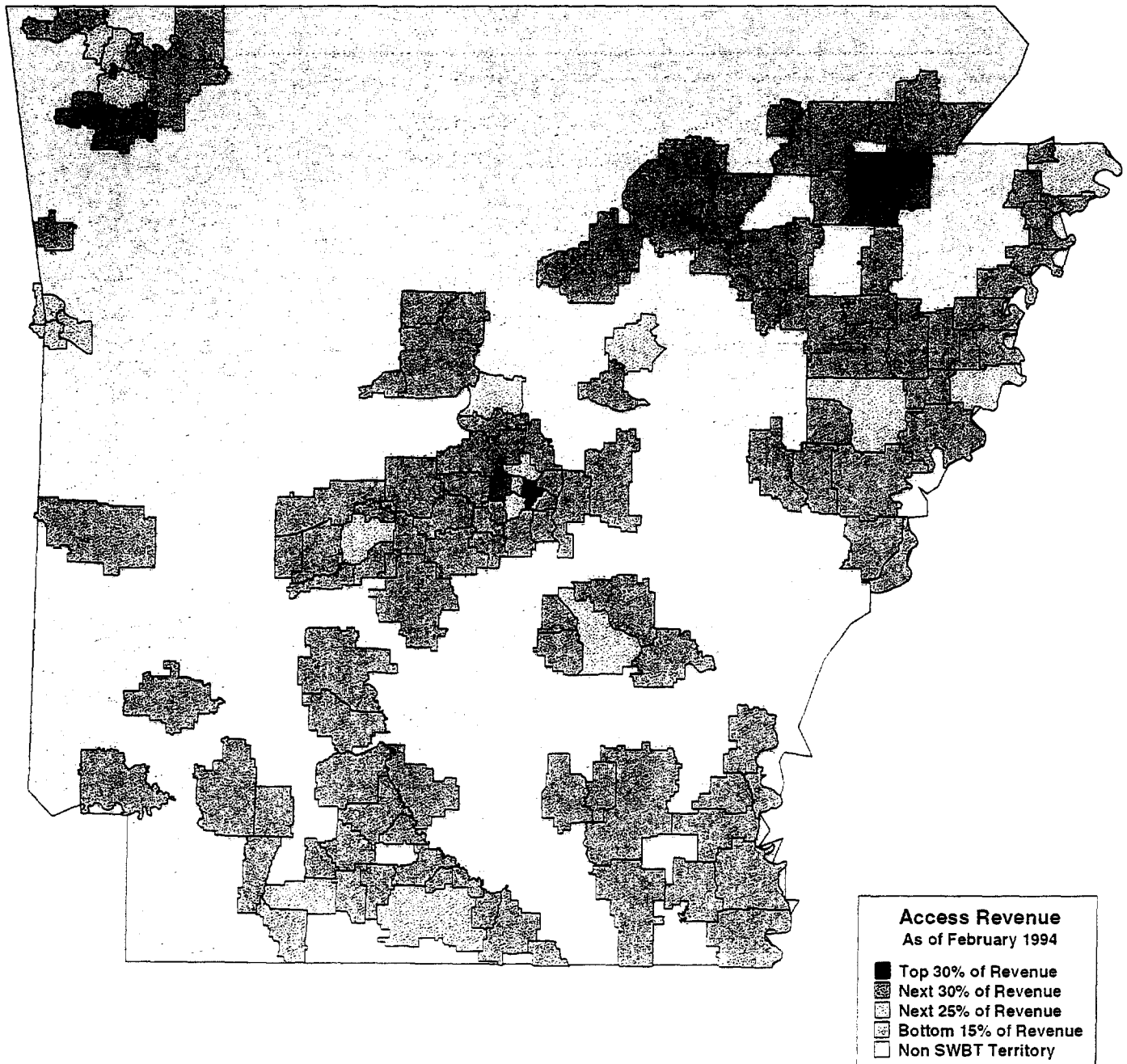
Deputy Director, Cost, Economic and Financial Analysis, Bureau of Accounts, Interstate Commerce Commission, Washington, D.C. (on leave, University of California); (1980-81).
Director, ARTRAIN (traveling art education exhibit), Michigan Council for the Arts, Detroit, (1971-72).
President, Young America Corporation (direct marketing of specialty products), St. Louis (1969-71).
Public Relations Consultant (TIME, Inc.; Rockefeller for President Committee; Young Citizens for Humphrey; Student Coalition for Congressional Action), New York and Washington D.C. (1967-69).
Vice President, National Student Marketing Corporation, Washington D.C. (1966-67).
Staff Assistant, Office of the Governor, State of Oregon, Salem (1966).
Public Relations Field Representative, General Motors Corporation, Warren, Michigan (1965).

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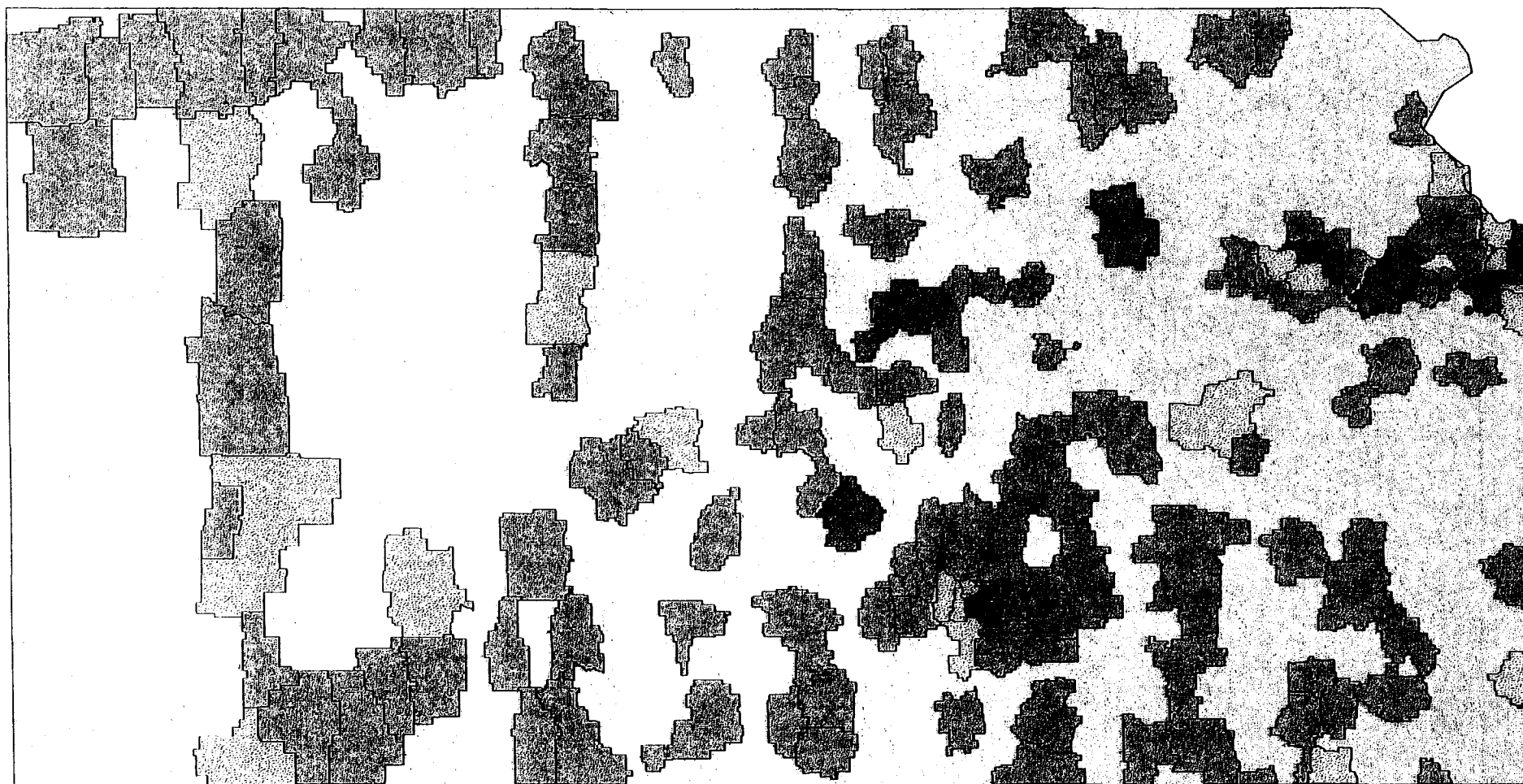
Arkansas

(Switched and Special Access Revenue)



Kansas

(Switched and Special Access Revenue)



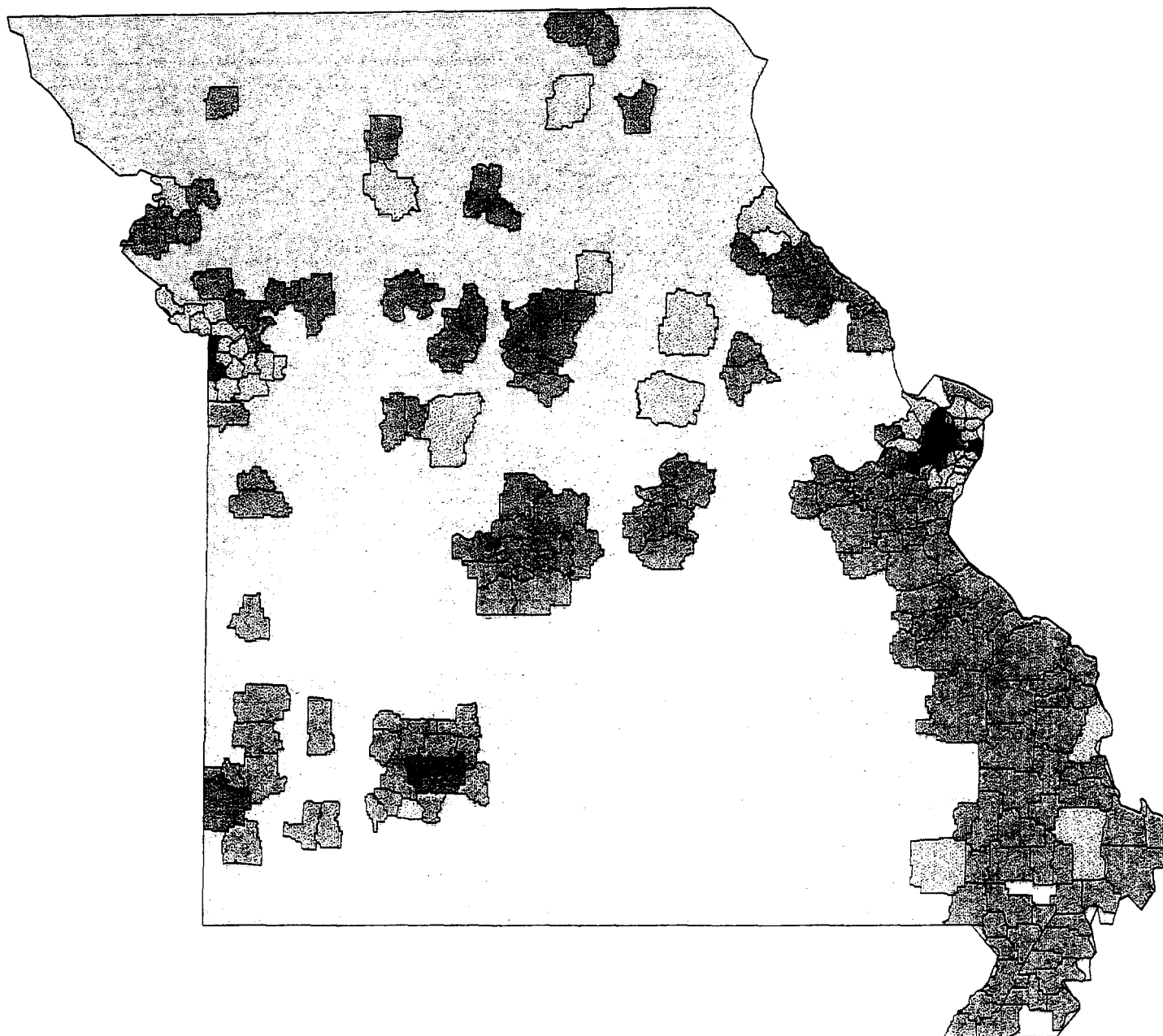
Access Revenue
As of February 1994

- Top 30% of Revenue
- ▒ Next 30% of Revenue
- ░ Next 25% of Revenue
- ▤ Bottom 15% of Revenue
- Non SWBT Territory

MARKETING DEPARTMENT
GENERAL MANAGER-MARKETING SUPPORT

Missouri

(Switched and Special Access Revenue)

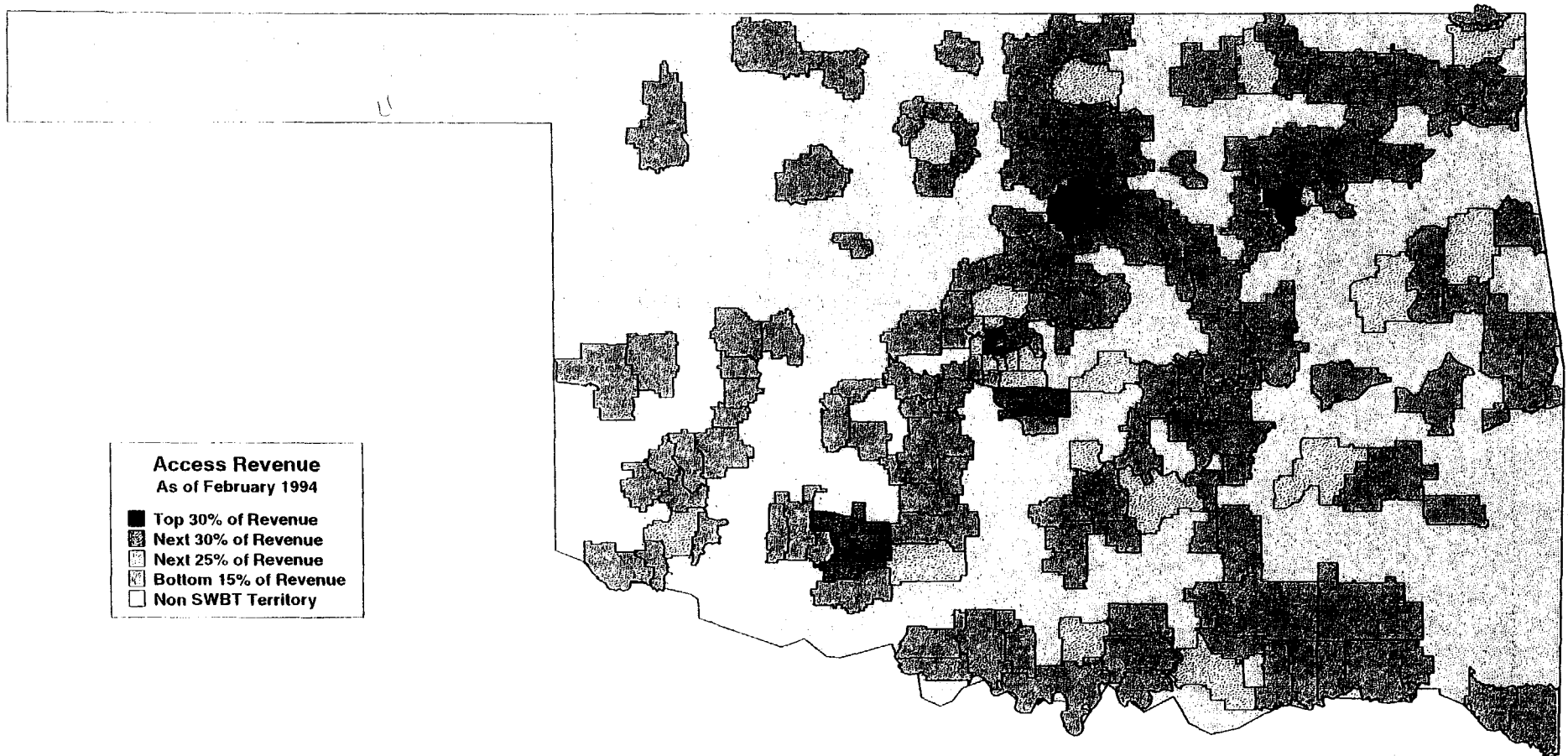


Access Revenue
As of February 1994

- Top 30% of Revenue
- Next 30% of Revenue
- Next 25% of Revenue
- Bottom 15% of Revenue
- Non SWBT Territory

Oklahoma

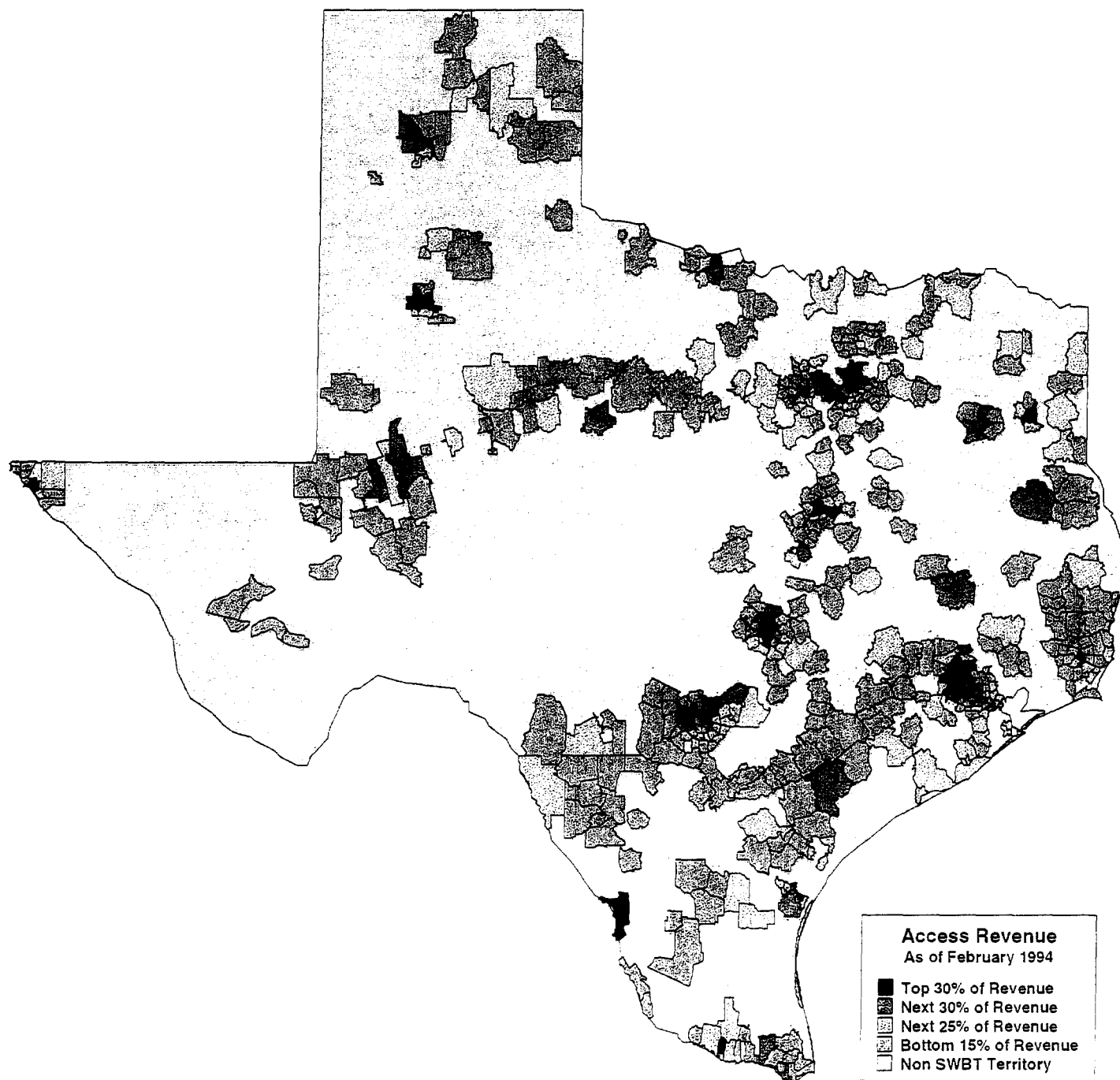
(Switched and Special Access Revenue)



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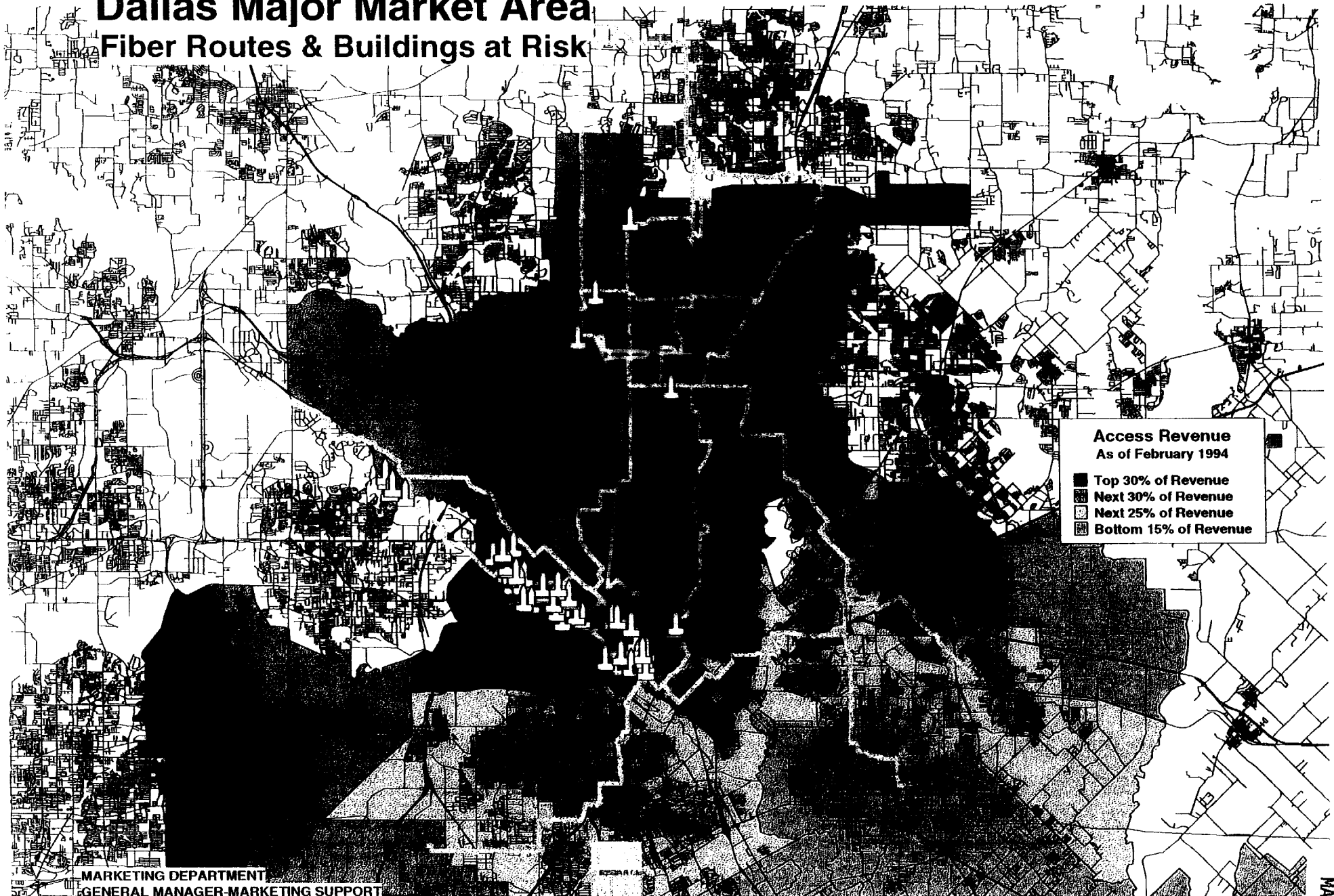
Texas

(Switched and Special Access Revenue)



Dallas Major Market Area

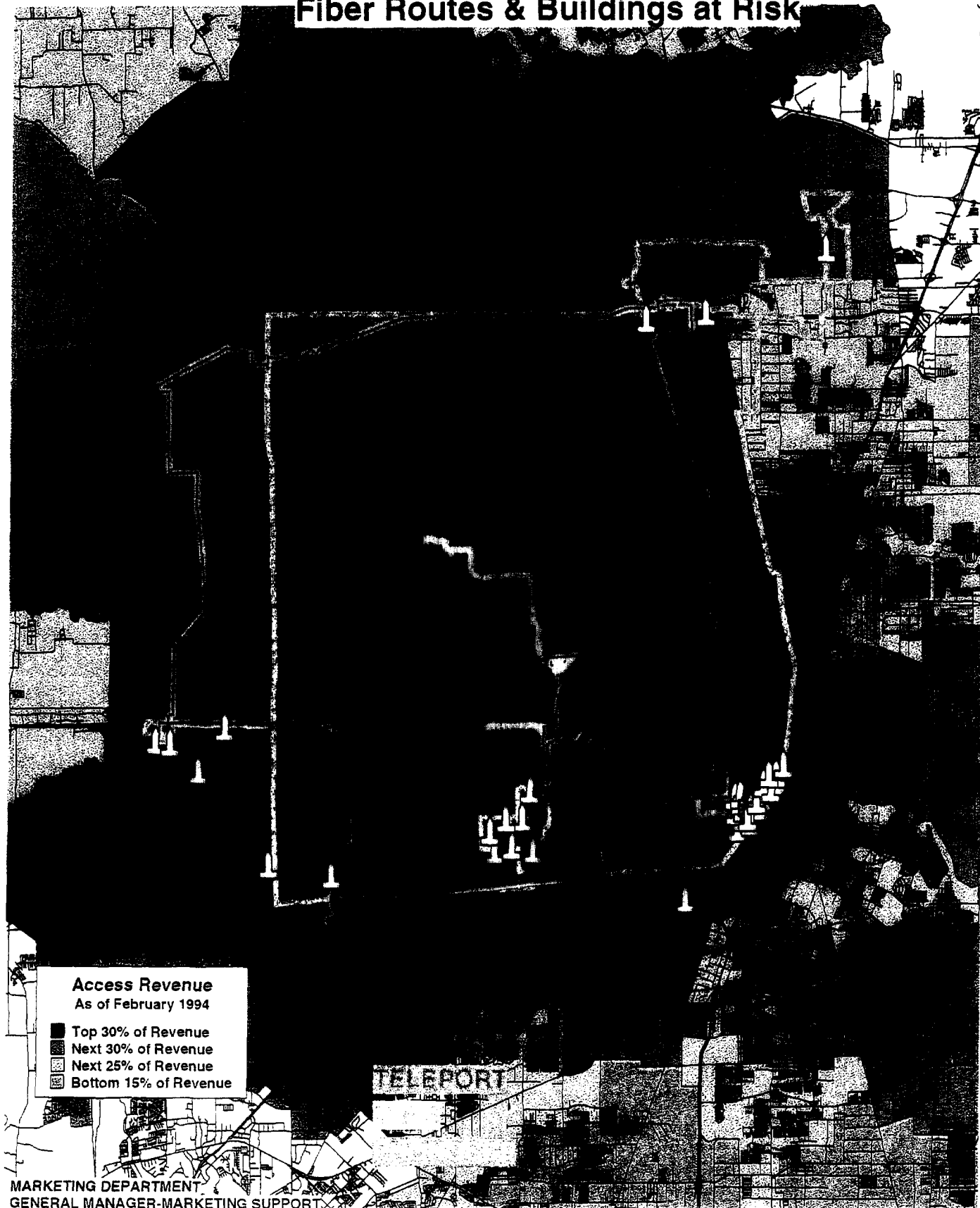
Fiber Routes & Buildings at Risk



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Houston Major Market Area

Fiber Routes & Buildings at Risk



Kansas City Major Market Area

Fiber Routes & Buildings at Risk

